Computer and information Technology

Sec.1

Second Term

2022/2023

Name:...........................

Class:...........................

Topic nine

Writing the Project Code
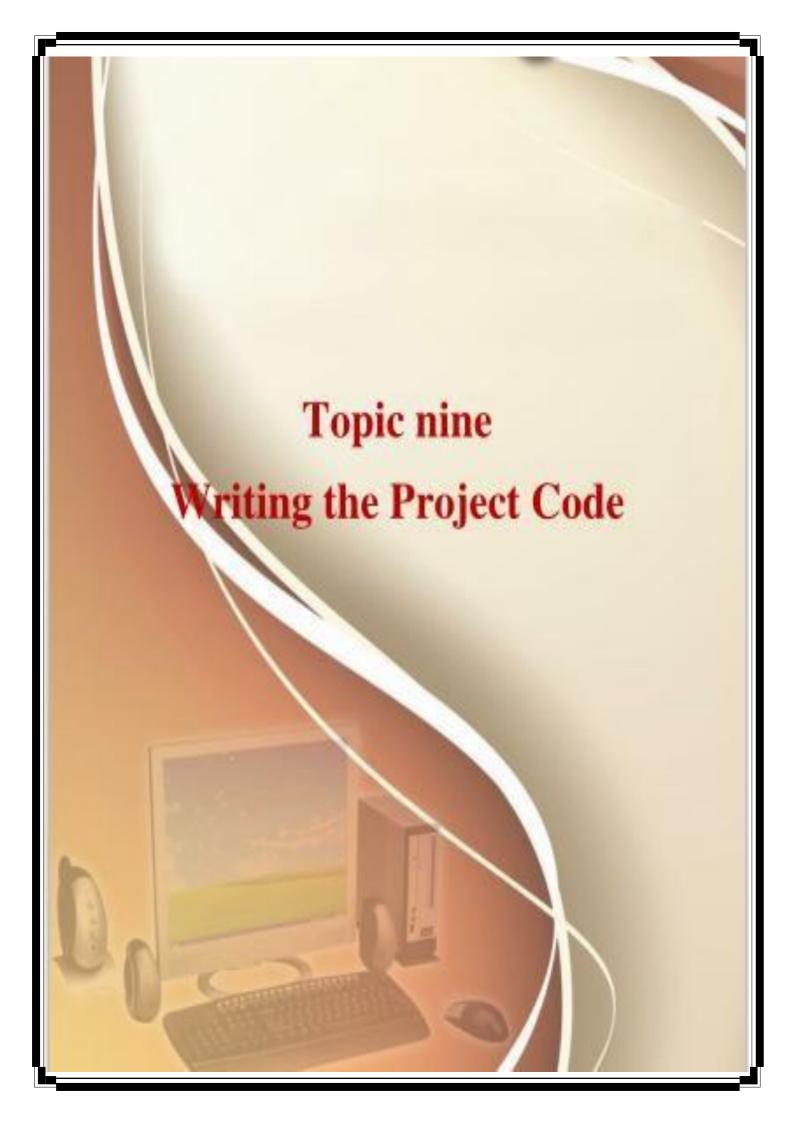
Learning outcomes:

At the end of the Topic students can:

1. Write the code required to retrieve data from an Excel sheet,
2. Write the code required to display data through their corresponding controls on the user interface window.

To write the (*Electronic Arabic Atlas*) Program code:

- Double click the "Continents" *Combobox* that opens in the design mode, and then the event handler appears as follows:

```
Private Sub cmbbxContinent_SelectedIndexChanged(send

End Sub
```

- Write the following code to display a list of country 'names of the Continent in the cmbbxState list, as shown in this code:

```
Private Sub cmbbxContinent_SelectedIndexChanged(sender As Object, e As EventArgs) Han
    Try
        Dim dt As New DataTable
        dt = GetDatafromExcelSheet("c:\Atlas\database\atlas.xls", _
                            "select الدولة from [data$] where القارة = '" _
                            & Me.cmbbxContinent.SelectedValue & "' ")

        Me.cmbbxState.DataSource = dt
        Me.cmbbxState.DisplayMember = dt.Columns(0).ToString
        Me.cmbbxState.ValueMember = dt.Columns(0).ToString

        Me.cmbbxState.SelectedIndex = 3
        Me.cmbbxState.SelectedIndex = 0

    Catch ex As Exception

    End Try
End Sub
```

In the previous code, you notice the following:

- The statement 'Try/Catch' was used to prevent errors; while running the program, the errors might result from calling the event *cmbbxContinent_SelectedIndexChanged* before the fill in of the list of continents' names.

- The following two lines of code were used to call the Event *cmbbxState_SelectedIndexChanged* to show Egypt's own data :

```
Me.cmbbxState.SelectedIndex = 3
Me.cmbbxState.SelectedIndex = 0
```

When you run the program, you find a list of countries as shown in the following figure:

- Double click "Countries" *Combobox* that opens in the design mode, and then the event handler appears as follows.

```
Private Sub cmbbxState_SelectedIndexChanged(sender As Ob

End Sub
```

- Write the necessary code that shows the selected "Country" data as illustrated in the following figure:

```
Private Sub cmbbxState_SelectedIndexChanged(sender As Object, e As EventArgs) Han
    Try
        Dim dt As New DataTable
        dt = GetDatafromExcelSheet("c:\Atlas\database\atlas.xls", _
                                   "select * from [data$] where الدولة = '" & _
                                   Me.cmbbxState.SelectedValue & "'")
        Me.lblDC.Text = dt.Rows(0).Item(2).ToString
        Me.lblPorts.Text = dt.Rows(0).Item(3).ToString
        Me.lblWR.Text = dt.Rows(0).Item(4).ToString
    Catch ex As Exception
    End Try
End Sub
```

In the previous code,

Rows refer to rows and Items refer to coloumns in the Excel sheet. The rows and columns numbers start with (0); row (o) refers to first row, and item (2) refers to the third column.

Dear student,

Remember the following:

1. On choosing a Continent, the names of its related Countries will be displayed.
2. On choosing a Country, its related data appear in the controls displayed on the user interface window.
3. A value is assigned to each element of the variable " *dt* "(Data table) for each field corresponding to the displayed Control ;on the user interface window.
4. The statement (Try/ Catch) is used with the code to prevent the occurance of errors during running the program.

After running the program, the user interface window appears as follows:

Exercises
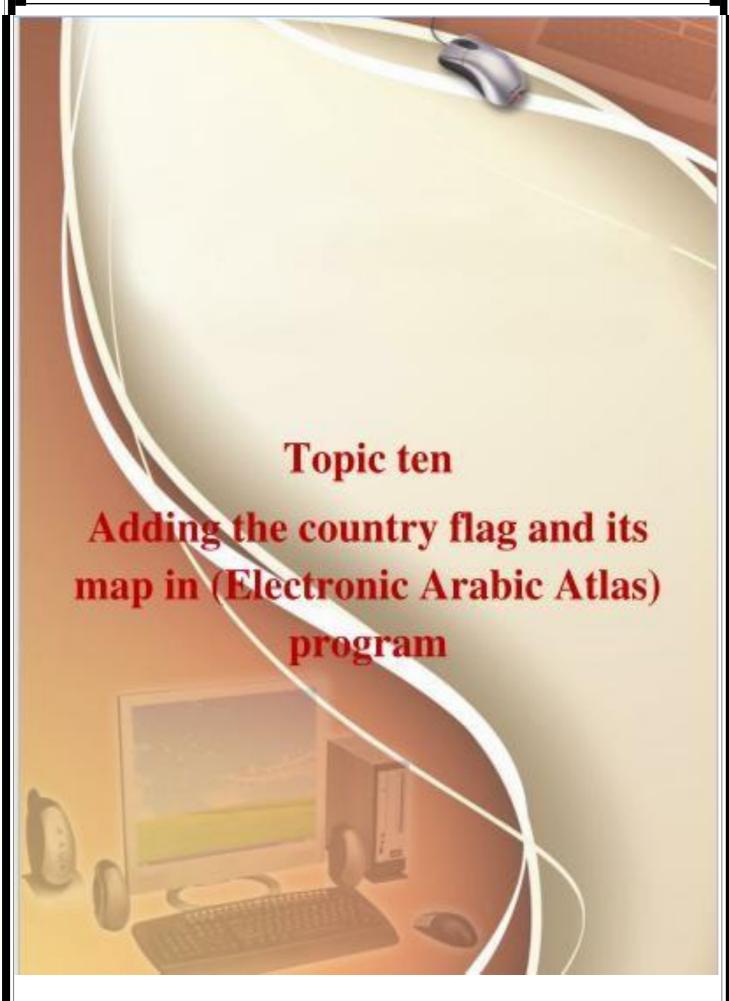
Choose the correct answers

First: The purpose of the following code :

Read the following code, and then choose the correct answer

```vb
Private Sub cmbbxContinent_SelectedIndexChanged(sender As Object, e As EventArgs) Handles
cmbbxContinent.SelectedIndexChanged
        Try
            Dim dt As New DataTable
            dt = GetDatafromExcelSheet("c:\Atlas\database\atlas.xls", _
                            "select الدولة from [data$] where القارة= '" _
                            & Me.cmbbxContinent.SelectedValue & "' ")
```

No	Statement	(✓)	(✗)
1-	The Excel Data Table is set in the variable **cmbbxContinent**		
2-	The Excel Data Table is saved in the following Path: " c:\Atlas\database\atlas.xls".		
3-	The Excel Data Table is set in the variable " *dt* "		

```vb
Private Sub cmbbxState_SelectedIndexChanged(sender As Object, e As EventArgs) Handles
cmbbxState.SelectedIndexChanged
        Try
            Dim dt As New DataTable
            dt = GetDatafromExcelSheet("c:\Atlas\database\atlas.xls", _
                            "select * from [data$] where الدولة= '" & _
                            Me.cmbbxState.SelectedValue & "'")
            Me.lblDC.Text = dt.Rows(0).Item(2).ToString
            Me.lblPorts.Text = dt.Rows(0).Item(3).ToString
            Me.lblWR.Text = dt.Rows(0).Item(4).ToString

        Catch ex As Exception
        End Try
                                                              End Sub
```

No	Statement	(✓)	(✗)
1-	The property *Text* for the control *lblPorts* has assigned the value of data located in the Row (3) and the column (0) in the table " dt".		
2-	The property *Text* for the control *lblPorts* has assigned the value of data located in the Row (0) and the column (3) in the table " dt".		
3-	The property *lblPorts* for the control *Text* has assigned the value of data located in the Row (0) and the column (3) in the table " dt".		

Topic ten

Adding the country flag and its map in (Electronic Arabic Atlas) program

Learning outcomes:

At the end of the Topic students can:

1-Write the code for displaying images through the user interface controls.

2- Prevent possible errors while running the   program.

3- Show off the image file types inside the folder.

4-Identify the path where image files will be saved.

Dear student,

In this Topic we will complete writing the project code related to the pictures of **Electronic Arabic Atlas** program.
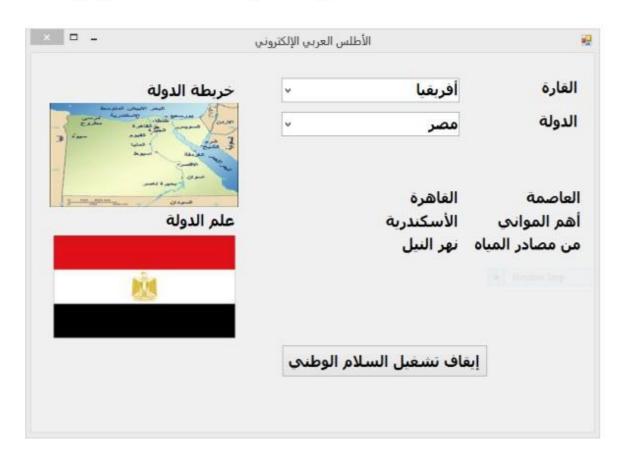
- Set the names of the image files (Flags and Maps) with the same names displayed in the list of country'names.

    - Some file names of country' flags in the **Flags** folder:

        - مصر.png
        - تونس.png
        - السعودية.png

    - Some file names of country' maps in the **Maps** folder:

        - مصر.png
        - تونس.png
        - السعودية.png

Notice:

The similarity in the names of the image files in the two folders **Flags** and **Maps** to simply deduce their names when assigning these images for both controls (**picbxFlag**, **picbxMap**) as written in the Excel sheet.

- Write the following code in the event handler **cmbbxState_SelectedIndexChanged** to display the country flag and its map as shown in the following code:

```vb
Private Sub cmbbxState_SelectedIndexChanged(sender As Object, e As EventArgs) Hand
    Try
        Dim dt As New DataTable
        dt = GetDatafromExcelSheet("c:\Atlas\database\atlas.xls", _
                                "select * from [data$] where الدولة= '" & _
                                Me.cmbbxState.SelectedValue & "'")
        Me.lblDC.Text = dt.Rows(0).Item(2).ToString
        Me.lblPorts.Text = dt.Rows(0).Item(3).ToString
        Me.lblWR.Text = dt.Rows(0).Item(4).ToString

        Dim picName As String = dt.Rows(0).Item(1).ToString & ".png"
        Me.picbxFlag.Image = Image.FromFile("c:\Atlas\flags\" & picName)
        Me.picbxMap.Image = Image.FromFile("c:\Atlas\maps\" & picName)

    Catch ex As Exception
    End Try
End Sub
```

While running the program, the flag and map of the selected country are displayed as shown in the following:

Remember dear student

1. Make sure of naming each file with a name suitable to its content
2. Illustrate different file types used in the project (Map –flag -National Anthem – video clip of touristic attractions.......).
3. Identify the path used for saving files.
4. Use Try/catch statement within the code to detect errors that may occur during program's execution and, to display an appropriate message for this error.

The user interface window will appear after the execution as follows

Exercises

1. Setup a project of name (VB_Multimedia_Pictures1K) to insert pictures into the control (*PictureBox*) from another control (*PictureBox*) or from a file using the (*InputBox*) so that the User Interface Window appears as follows:

Programming Code

```
' ---------------------- Insert a Picture from a PictureBox or from a File to another PictureBox ----------------------

Public Class Form1
    Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button1.Click
        PictureBox3.Image = PictureBox1.Image
    End Sub

    Private Sub Button2_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button2.Click
        PictureBox3.Image = PictureBox2.Image
    End Sub

    Private Sub Button3_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button3.Click
        Dim P As String
        P = InputBox("Enter a Filename:")
        PictureBox3.Image = Image.FromFile(P)
    End Sub
End Class
```

Notice: The command used for inserting an image file to the control (*PictureBox3*) is:

PictureBox3.Image = Image.FromFile ("PictureFilename.ext").

2. Setup a project called (*VB_Multimedia_Pictures2K*) to insert pictures into the control (*PictureBox*) from another control (*PictureBox*) or from a file using the (*ComboBox*) control so that the User Interface Window appears as follows:

Programming Code

```
' ---------------------- Insert a Picture from a PictureBox or from a File to another PictureBox ----------------------

Public Class Form1
    Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button1.Click
        PictureBox3.Image = PictureBox1.Image
    End Sub
    Private Sub Button2_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button2.Click
        PictureBox3.Image = PictureBox2.Image
    End Sub
    Private Sub ComboBox1_SelectedIndexChanged(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles ComboBox1
        Dim P As String
        P = ComboBox1.SelectedItem
        Try
            PictureBox3.Image = Image.FromFile(P)
        Catch ex As Exception
            MsgBox("The file " & P & " is not fond")
        End Try
    End Sub
End Class
```

Notice: We used the control "ComboBox1" that preserve the names of image files saved in the storage media.

Exercises

1. **Read the following code, and then choose the correct answer**

```
Dim picName As String = dt.Rows(0).Item(1).ToString & ".png"
Me.picFlag.Image = Image.FromFile("c:\Atlas\flags\" & picName)
Me.picMap.Image = Image.FromFile("c:\Atlas\maps\" & picName)
```
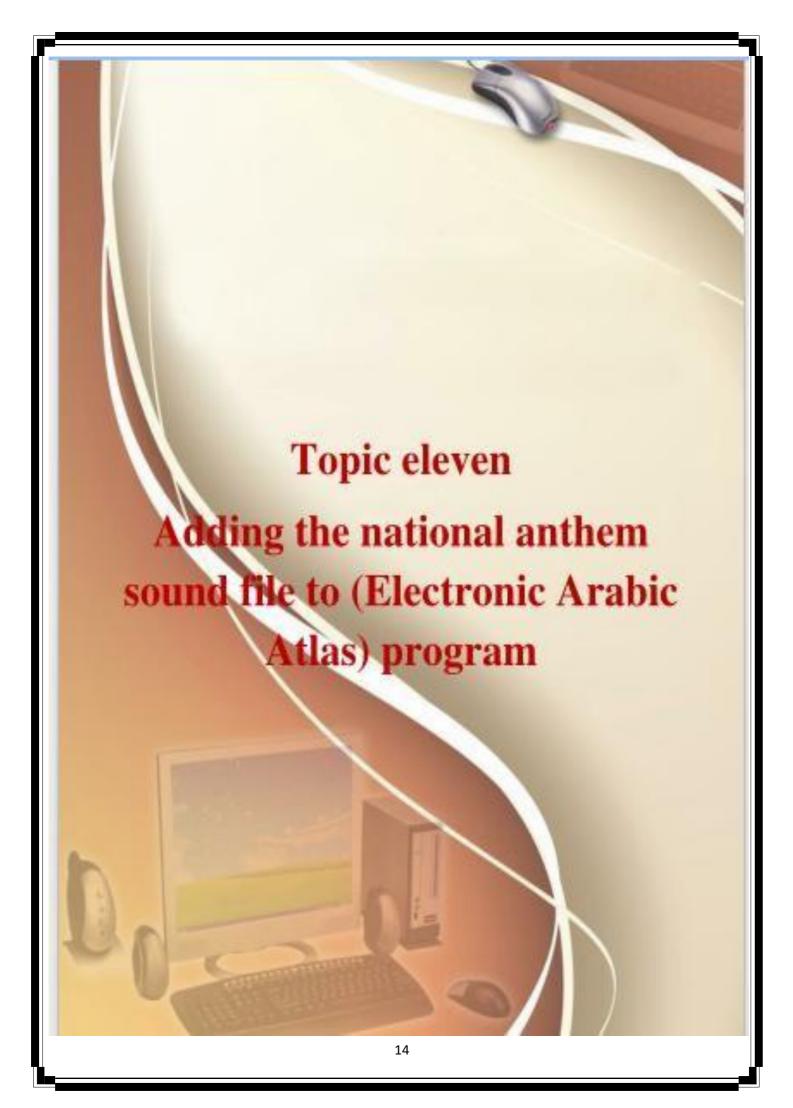
The value assigned to the variable <u>PicName</u> is:

No	Statement	(✓)	(✗)
1-	The content of Row (0) and the column (1) in the table " dt"; plus the file extension **.png.**		
2-	The content of the Row (1) and the column (0) in the table " dt"; plus the file extension **.png.**		
3-	The content of Row (0) and the column (1) in the table " dt"; plus the file extension **ToString**.		

2. **Read the following code, and then choose the correct answer.**

Me.picFlag.Image =
Image.FromFile("c:\Atlas\flags\" & picName)

The code is used to assign a picture file to the property:

No	Statement	(✓)	(✗)
1-	Image for the control **PicFlag**		
2-	FromFile for the control **PicFlag**		
3-	Image for the control **FromFile**		

Topic eleven

Adding the national anthem sound file to (Electronic Arabic Atlas) program

Learning outcomes:

At the end of the Topic students can:

1. Write the program code to play or stop a sound file; when pressing the command button
2. Declare variables and specify their location; on the level of class, or procedure.
3. Show the audio file types inside the folder.
4. Specify the path where sound files are saved

Adjust audio file names of countries' national anthem; with the same names shown in the list of countries names.

- Some audio file names of countries' national anthem saved in the "*Anthem*" folder

  مصر.**mp3**

  تونس.**mp3**

  السعودية.**mp3**

- Type the following code in the "cmbbxState_SelectedIndexChanged" event handler to run the national Anthem of the country as shown in the following code:

```vbnet
Dim anthemMp3 As String
Private Sub cmbbxState_SelectedIndexChanged(sender As Object, e As EventArgs) Handl
    Try
        Dim dt As New DataTable
        dt = GetDatafromExcelSheet("c:\Atlas\database\atlas.xls", _
                                   "select * from [data$] where الدولة = '" & _
                                   Me.cmbbxState.SelectedValue & "'")
        Me.lblDC.Text = dt.Rows(0).Item(2).ToString
        Me.lblPorts.Text = dt.Rows(0).Item(3).ToString
        Me.lblWR.Text = dt.Rows(0).Item(4).ToString

        Dim picName As String = dt.Rows(0).Item(1).ToString & ".png"
        Me.picbxFlag.Image = Image.FromFile("c:\Atlas\flags\" & picName)
        Me.picbxMap.Image = Image.FromFile("c:\Atlas\maps\" & picName)


        anthemMp3 = "c:\Atlas\anthem\" & dt.Rows(0).Item(1).ToString & ".mp3"
        Me.WMPlayer.URL = anthemMp3
        Me.btnStop_play.Text = "إيقاف تشغيل السلام الوطني"
    Catch ex As Exception
    End Try
End Sub
```

Notice: A variable named *anthemMp3* was declared to the level of class, to save the path and the name of the sound file; so it can be used in more than one event handler

- **To control the start or stop of a sound national Anthem file; type the code in the "btnStop_play_Click" event handler of the button "btnStop_Play" as shown in the following code:**

```
Private Sub btnStop_play_Click(sender As Object, e As EventArgs) Handles btnStop_play.Click
    If Me.btnStop_play.Text = "إيقاف تشغيل السلام الوطني" Then
        Me.WMPlayer.close()
        Me.btnStop_play.Text = "تشغيل السلام الوطني"
    Else
        Me.WMPlayer.URL = anthemMp3
        Me.btnStop_play.Text = "إيقاف تشغيل السلام الوطني"
    End If
End Sub
```

Remember dear student
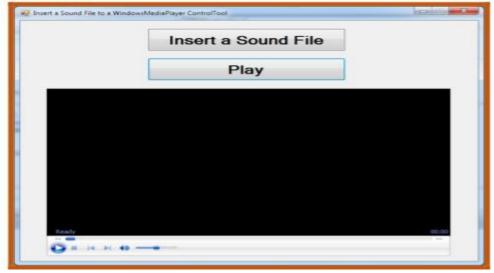
1. Make sure of naming the audio files for the national anthem of each country.
2. Show the national anthem file types.

The user interface window will appear after the execution as follows

---

Exercises

1- Set up a project with name (VB_Multimedia_Sound1K) so that you can insert a sound file to the tool (AxWindowsMediaPlayer), and play it using an input box (InputBox) on the form as follows:

Code
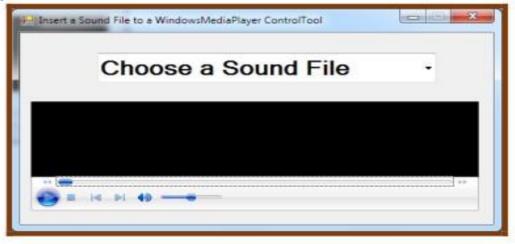
```
' ---------------------------- Insert a Sound File to a WindowsMediaPlayer ControlTool ----------------------------

Public Class Form1
    Dim V As String

    Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button1.Click
        V = InputBox("Enter a Sound Filename:")
        Button2.Text = "Play"
        AxWindowsMediaPlayer1.close()
    End Sub

    Private Sub Button2_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button2.Click
        If Button2.Text = "Play" And V <> "" Then
            AxWindowsMediaPlayer1.URL = V
            Button2.Text = "Stop"
        Else
            AxWindowsMediaPlayer1.close()
            Button2.Text = "Play"
        End If
    End Sub
End Class
```

Notice

Insert a sound file into the (AxWindowsMediaPlayer) tool by typing the desired file name in the input box (InputBox) that will be executed later.

2- Set up a project with name (VB_Multimedia_Sound2K) to insert a sound file into the control (AxWindowsMediaPlayer) using the control (ComboBox), as illustrated on the form:

Program code

```
' Insert a Sound File to a WindowsMediaPlayer ControlTool
Public Class Form1
    Private Sub ComboBox1_SelectedIndexChanged(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles ComboBox1.SelectedIndexChanged
        Dim V As String
        V = ComboBox1.SelectedItem
        AxWindowsMediaPlayer1.URL = V
    End Sub
End Class
```

Notice

The control *ComboBox* is used to display audio files'names saved on the storage medium to be executed later.

3. Read the following code, and then choose the correct answer

```
anthemMp3 = "c:\Atlas\anthem\" & dt.Rows(0).Item(1).ToString & ".mp3"
Me.WMPlayer.URL = anthemMp3
Me.btnStop_play.Text = "إيقاف تشغيل السلام الوطني"
```

The URL is used for:

No	Statement	(✓)	(✗)
1-	To stop playing the sound file for the control WMPlayer		
2-	To play the sound file for the control WMPlayer		
3-	To record the sound file for the control WMPlayer		

4. Read the following code, and then choose the correct answer

```
Private Sub btnStop_play_Click(sender As Object, e As EventArgs) Handles btnStop_play.Click
    If Me.btnStop_play.Text = "إيقاف تشغيل السلام الوطني" Then
        Me.WMPlayer.close()
        Me.btnStop_play.Text = "تشغيل السلام الوطني"
    Else
        Me.WMPlayer.URL = anthemMp3
        Me.btnStop_play.Text = "إيقاف تشغيل السلام الوطني"
    End If
End Sub
```
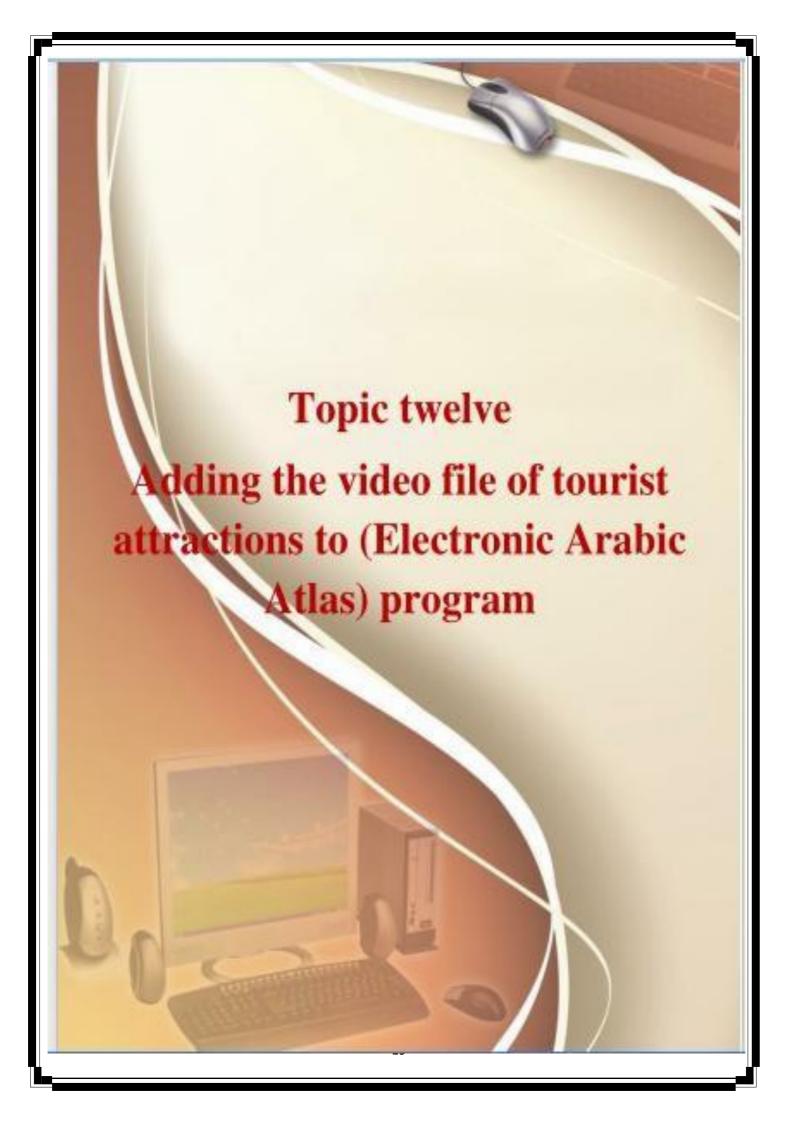
The code is used for:

No	Statement	(✓)	(✗)
1-	To play the National Anthem sound file		
2-	To stop playing the National Anthem sound file		
3-	To stop/play the National Anthem sound file		

Topic twelve

Adding the video file of tourist attractions to (Electronic Arabic Atlas) program

Learning outcomes:

At the end of the Topic students can:

1. Write the program code to play or stop a video file.
2. Specify the path where video files are saved.
3. Show the video file types inside the folder.

Adjust video file names of countries' tourist attractions; with the same names shown in the list of countries names.

- Some video file names of countries' tourist attractions saved in the "*Video*" folder

    مصر.mp3

    تونس.mp3

    السعودية.mp3

- Add a command button to the interface of the program So that the value of the property *Name* is "btnPlayVideos "and the value of the property *Text* is "*tourist attractions*".

- Type the following code in the " *btnPlayVideos_Click* " event handler for " *btnPlayVideos* " button to run tourist attractions video file for the countries as shown in the following code:

```
Private Sub btnPlayVideos_Click(sender As Object, e As EventArgs) Handles btnPlayVideos.Click
    If Me.btnPlayVideos.Text = "معالم سياحية" Then
        Me.WMPlayer.Visible = True
        Me.WMPlayer.URL = "c:\Atlas\videos\" & Me.cmbbxState.SelectedValue.ToString & ".wmv"
        Me.btnPlayVideos.Text = "إيقاف العرض "
    Else
        Me.WMPlayer.Visible = False
        Me.WMPlayer.close()
        Me.btnPlayVideos.Text = "معالم سياحية"
    End If
End Sub
```

Remember dear student

1. Make sure of naming the video files of *tourist attractions* for each country.
2. Show the video files of *tourist attractions*.
3. Recognize the path where video files are saved.

Notice

1. The property *SelectedValue* of the control "*cmbbxState*" was used to get the name of the country; to identify the video file name and path.

2. The control *WMPlayer* was displayed by setting the property *Visible* to the value *True*; so you can see the video file displayed on the screen.

3. You can turn off or play the video file through *btnPlayVideos* button as shown in the previous code.

The user interface window will appear after the execution as follows:

Exercises

1- Set up a project with name (VB_Multimedia_ Vedio1K) so that you can insert a video file to the tool (AxWindowsMediaPlayer), and play it using an input box (InputBox) on the form as follows:
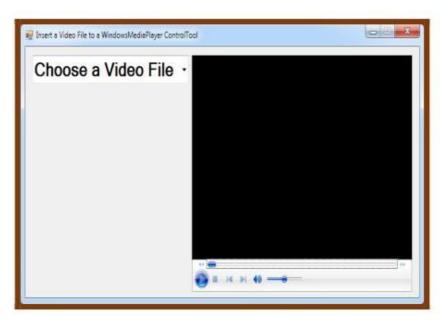

Program code

```
' ----------------------------- Insert a Video File to a WindowsMediaPlayer ControlTool -----------------------------

Public Class Form1
    Dim V As String

    Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button1.Click
        V = InputBox("Enter a Video Filename:")
        Button2.Text = "Play"
        AxWindowsMediaPlayer1.close()
    End Sub

    Private Sub Button2_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button2.Click
        If Button2.Text = "Play" And V <> "" Then
            AxWindowsMediaPlayer1.URL = V
            Button2.Text = "Stop"
        Else
            AxWindowsMediaPlayer1.close()
            Button2.Text = "Play"
        End If
    End Sub
End Class
```

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Insert a sound file into the (AxWindowsMediaPlayer) tool by typing the desired file name in the input box (InputBox) that will be executed later.

2- Set up a project with name (VB_Multimedia_Vedio2K) to insert a video file into the control (AxWindowsMediaPlayer) using the control (ComboBox), on the form as follows:

Program code

```
' Insert a Video File to a WindowsMediaPlayer ControlTool
Public Class Form1
    Private Sub ComboBox1_SelectedIndexChanged(ByVal sender As
System.Object, ByVal e As System.EventArgs) Handles
ComboBox1.SelectedIndexChanged
        Dim V As String
        V = ComboBox1.SelectedItem
        AxWindowsMediaPlayer1.URL = V
    End Sub
End Class
```

Notice
The control *ComboBox* is used to display video files'names saved on the storage medium to be executed later

Questions relating to Project's codes

First question

State whether the following statements are true (√) or false (X)

#	The statement	(✓)	(✗)
(1)	You can use Try/Catch to discover errors while running the program and display an appropriate message for this error	O	O
(2)	The code **Me.lblDC.Text = dt.Rows(0).Item(2).ToString** customize a value to the element in the second row and first column of the data table **lblDC**.	O	O
(3)	The event **SelectedIndexChanged** of the control **ComboBox** is executed when changing the current item in the existing list.	O	O
(4)	The (&) operator is used to concatenate between string variables and text; the result is a single string.	O	O
(5)	The code **Me.lblDC.Text = dt.Rows(0).Item(2).ToString** customize a value to the element in the first row and third column in the spreadsheet and places it within the **lblDC**.	O	O

(6) To the **URL** property in the code **Me.WMPlayer.URL = "anthem.mp3"** is used to stop or play the sound file "anthem.mp3".

(7) The function **FromFile** is used to assign a picture from a file.

(8) The property **DisplayMember** of the control **ComboBox** can be used to specify a field from the data source that appears inside this control.

(9) The property **ValueMember** of the control **ComboBox** can be used to specify a field from the data source as the value of each element of the list items.
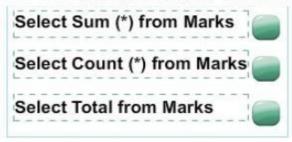
Second question

You have a data table named "Marks" of a group of students, their grades and the total of these grades as follows
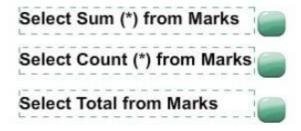
Name	Arabic	English	French	Total
Youssef Khaled	50	49	48	147
Mohamed Khaled	43	45	47	135
Samy Ahmed	22	24	30	76
Mohamed Aly	48	35	44	127
Soad Hafez	25	29	30	84
Mona Zaki	19	10	17	46
Nahed Nasr	26	35	42	103
Wael Salah	50	46	41	137
Hamada Farid	37	29	33	99
Walid Abdou	30	35	34	99

Choose the right syntax for the Select statement to get the following:

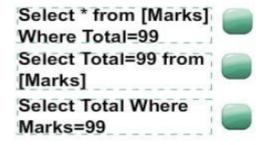1. **All the records in a data table…………………………………….**

   Select Sum (*) from Marks ⬤

   Select Count (*) from Marks ⬤

   Select Total from Marks ⬤

2. **The number of records in a data table……………………………….**

   Select Sum (*) from Marks ⬤

   Select Count (*) from Marks ⬤

   Select Total from Marks ⬤
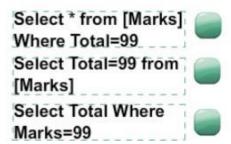
3. **The names of students only……………………………….**

   Select * from [Marks] Where Total=99 ⬤

   Select Total=99 from [Marks] ⬤

   Select Total Where Marks=99 ⬤

4. **The names of the students and their grades……………………………**

   Select * from [Marks] Where Total=99 ⬤

   Select Total=99 from [Marks] ⬤

   Select Total Where Marks=99 ⬤

5. **All records on condition that their total equals 99…………………………**

   Select * from [Marks] Where Total=99 ⬤

   Select Total=99 from [Marks] ⬤

   Select Total Where Marks=99 ⬤

6. The Names and total of grades provided that their total equals 99...................................

Select Name , French from [Marks] Where French >=44 ⬜

Select Name, French Where French >=44 ⬜

Select Name , French >=44 from [Marks] ⬜

7. The Names and total of grades provided that their total is less than 75...................................

Select Name , French from [Marks] Where French >=44 ⬜

Select Name, French Where French >=44 ⬜

Select Name , French >=44 from [Marks] ⬜

8. Student's names and their grades in "French" language provided that the grade is greater than or equal 44....................................

Select Name , French from [Marks] Where French >=44 ⬜

Select Name, French Where French >=44 ⬜

Select Name , French >=44 from [Marks] ⬜

9. All students having grade=50 in the "Arabic" language....................................

Select Count (Name) from Marks Where Total >=75 ⬜

Select Count (Total >=75) from Marks ⬜

Select Name , Count (Total >=75) from Marks ⬜

10. All students names that begin with the letters ' M ' ....

Select Count (Name) from Marks Where Total >=75 ⬜

Select Count (Total >=75) from Marks ⬜

Select Name , Count (Total >=75) from Marks ⬜

12. All students names ending with the letters ' ed '.....................................

Select Name from Marks Where Name Like 'ed%'   ⬤

Select Name from Marks Where Name Like '%ed'   ⬤

Select Name ('_ed') from Marks   ⬤